

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF MICHIGAN  
SOUTHERN DIVISION

TK HOLDINGS, INC.,

Plaintiff/Counter-Defendant,

Case No. 08-14266

-vs-

CTS CORP., et al.,

Defendants/Counter-Plaintiff.

Hon: AVERN COHN

**TK CASE**

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**MEMORANDUM AND ORDER ON CLAIM CONSTRUCTION<sup>1</sup>**

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<sup>1</sup> Ordinarily, the Court would hold a hearing on this matter. However, upon review of the parties' papers, the Court finds that oral argument is not necessary. See E.D. Mich. LR 7.1(f)(2).

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EASTERN MICHIGAN

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## **I. Introduction**

This is a patent case. Plaintiff TK Holdings, Inc. ("TK"), owner by assignment of U.S. Patent No. 7,100,944 B2, Method of Attaching a Seat Belt to a Seat Belt Tension Sensor ("the '944 patent"), is suing CTS Corporation ("CTS") claiming infringement.<sup>2</sup> Claim 19 is the paradigm claim. This is a Markman proceeding.<sup>3</sup> As will be explained, there are 5 disputed words/phrases. The respective positions of the parties together with the Court's resolution are displayed in the claim chart attached as Exhibit A. As the Court has repeatedly observed, claim construction in a Markman proceeding is always tentative and its conclusions are open to change as the case unfolds.

## **II. Background**

### **A. The '944 Patent**

The ABSTRACT of the '944 patent describes the invention as follows:

A webbing of a seat belt engages an opening of a seat belt tension sensor. In one embodiment, the webbing is bunched or folded so as to prevent rubbing against the sides of the opening in the housing and anchor plate, or an outer surface of the seat belt tension sensor. The webbing is maintained in a bunched or folded state using either a set of stitches between the two portions of the webbing of the loop; separate sets of stitches in the respective separate portions; a ring enclosing the two portions; separate rings, or ring portions separated by a spacer, enclosing the respective separate portions; or a sleeve, thimble, or thimble portion of the carriage of the seat belt tension sensor engaging the bunched or folded webbing. In another embodiment, the openings in the housing and anchor plate are sufficiently wider than the opening in the carriage, and the carriage incorporates a flange.

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<sup>2</sup> CTS is suing TK claiming infringement of three of CTS's patents (U.S. Patent Nos.. 6,431,013, 6,467,361, and 6,161,891). CTS's claims are the subject of a separate parallel proceeding ("the CTS case") which is also at the Markman stage.

<sup>3</sup> See Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). See also The Sedona Conference Report on the Markman Process, June 2006 Public Comment Version, available at [www.thesedonaconference.org](http://www.thesedonaconference.org) and Patent Case Management Judicial Guide (Federal Judicial Center 2009), Chapter 5.

In general terms, the '944 patent relates to seat belt tension sensors for use in automobile passenger safety restraint system. The sensors are used to detect the presence and/or weight of an occupant in a seat and communicate appropriately with the associated air bag in terms of deployment.

Figs. 1 and 2 of the '944 patent illustrate such a safety restraint system for the forward passenger seat. Fig. 1 shows a typical "three point" seat belt, in which one end of a lap belt portion 16 is attached to an anchor 22 secured to vehicle frame 24, and one end of a shoulder belt portion 18 is attached to a belt retractor 28. The other ends of these two portions are connected to a latch plate 32 that engages a buckle 34 secured to the vehicle frame at the other side of the vehicle seat. The belt retractor 28 has a spool of webbing to enable the belt to be placed around the occupant. It removes excess slack from the webbing during normal operation, and locks during a crash event so that the occupant is restrained by the webbing. Figures 1 and 2 are depicted below.

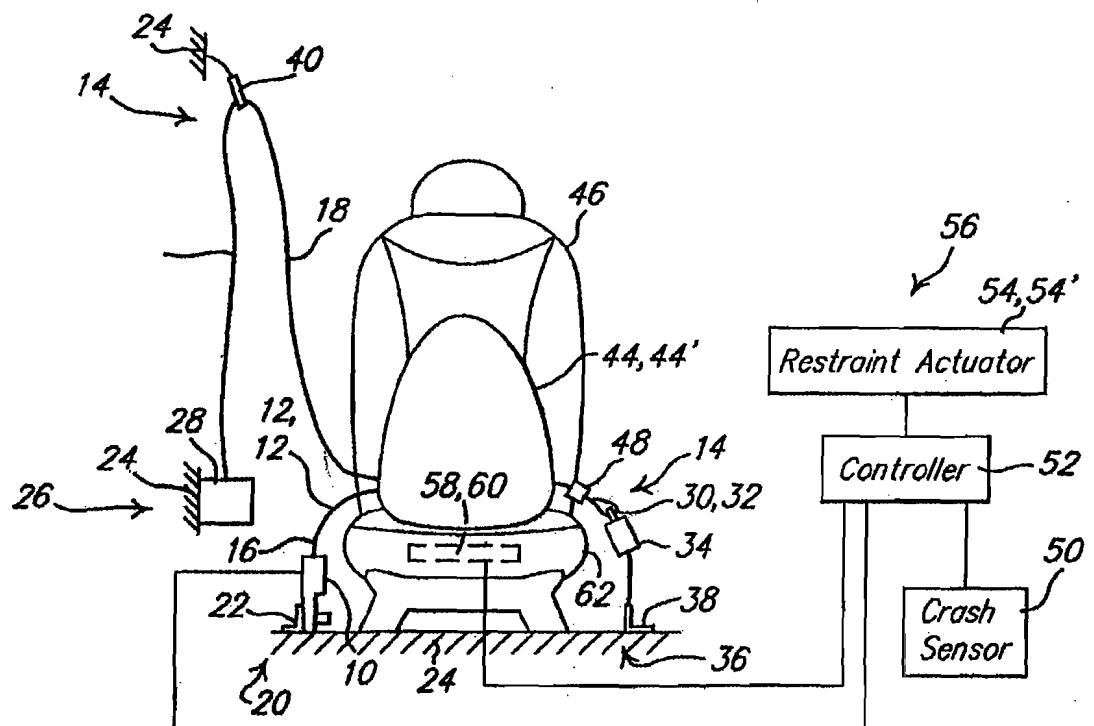
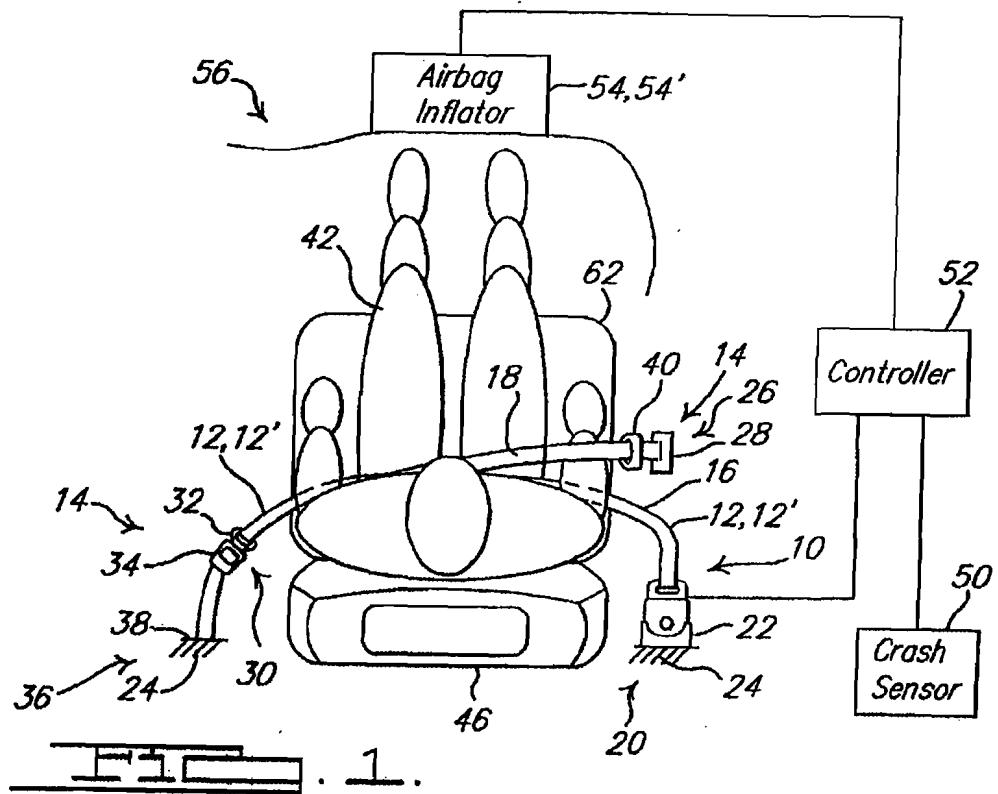
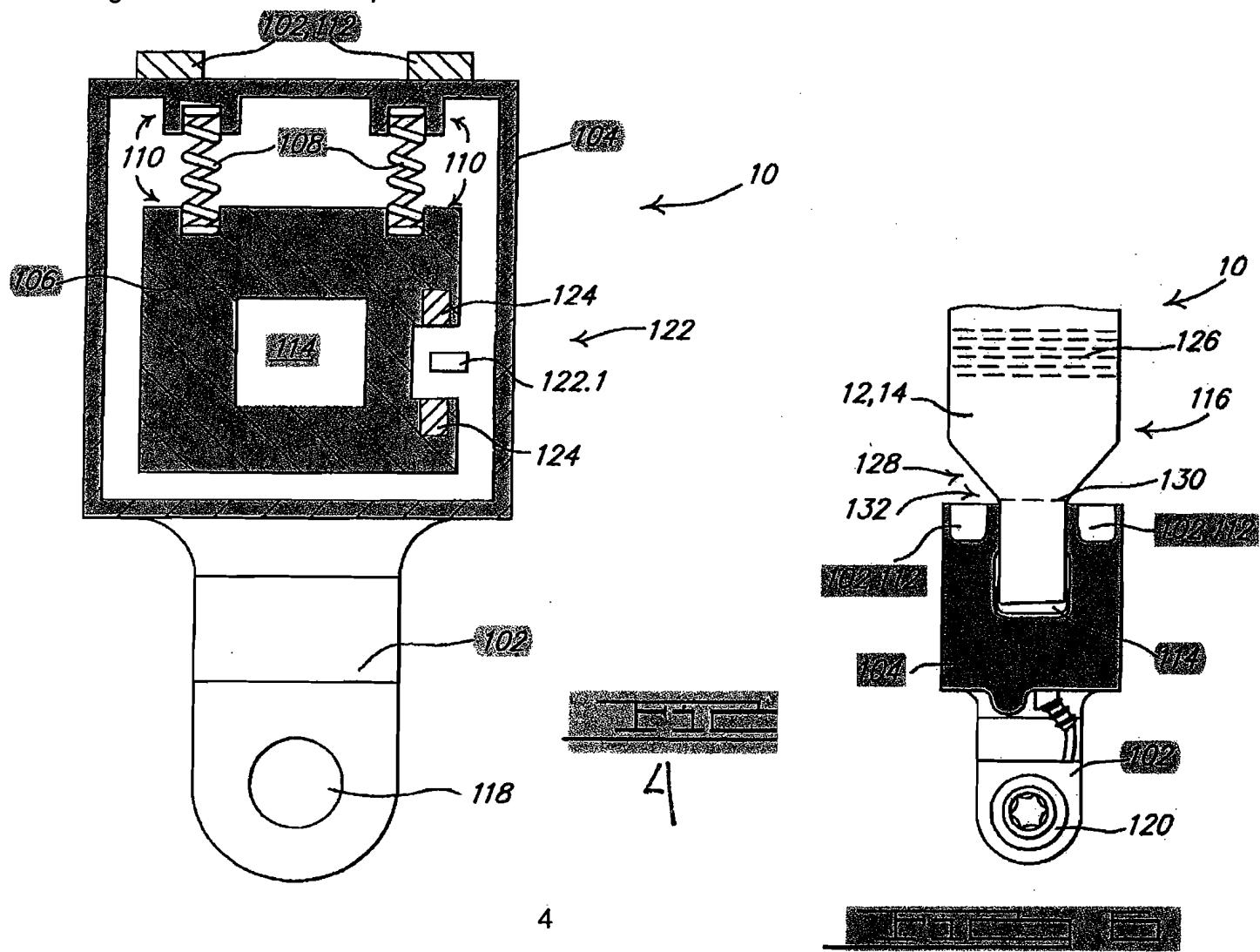


FIG. 1. FIG. 2.

The specification refers to the "exemplary seat belt tension sensor 10" illustrated in Figures 4 and 6. It is described in Column 4, lines 32 to 45 as follows:

Referencing to FIGS. 4-6, an exemplary seat belt tension sensor 10 comprises an assembly of an anchor plate 102, a housing 104, a carriage 106 moveable within the housing 104, and a pair of helical compression springs 108 disposed between the carriage 106 and the housing 104 within associated spring guide cavities 110. The housing 104 engaged and is restrain by a pair of fingers 112 extending from the anchor plate 102, and is also attached to the anchor plate 102 with a screw. Openings 114 in the carriage 106, housing 104 and anchor plate 102 are aligned so as form an opening 114 in the assembly to which is attache a loop 116 of webbing 12 of a seat belt 14. The anchor plate 102 further comprises a mounting hole 118 by which the seat belt tension sensor 10 is attached with an anchor bolt 120 to a vehicle frame 24.

Figures 4 and 6 are depicted below.



## B. Claim 19

As noted above, TK designated claim 19 as the paradigm claim. See Pretrial Order No. 1 (Doc. No. 25).<sup>4</sup> CTS thereafter identified ambiguous words/phrases in claim 19. See Doc. No. 28. TK then responded with its proposed constructions of the words/phrases identified by defendant. See Doc. No. 34. The parties then filed Markman briefs. See Doc. Nos. 56, 67, 68.

Claim 19, in alphanumeric format, reads:

- (1) A carriage of a seat belt tension sensor,
  - a) wherein said carriage is adapted to engage a webbing of a seat belt and
  - b) said carriage is adapted to move relative to a first portion of the seat belt tension sensor in opposition to at least one spring acting between said first portion of the seat belt tension sensor and said carriage,
  - c) whereby the amount of movement is responsive to a tension in the seat belt,
- (2) said carriage comprising,
  - d) an opening adapted to receive the webbing of the seat belt,
    - 1) wherein said opening cooperates with a corresponding opening in said first portion of the seat belt tension sensor; and

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<sup>4</sup> TK has also asserted claim 1. See TK Holdings, Inc.'s Notice of Asserted Claims. (Doc. No. 26).

- 2) wherein said opening in said first portion of said seat belt tension sensor is sufficiently wider than the opening in the carriage
- 3) so as to prevent said webbing from rubbing against a side of said corresponding opening in said first portion of the seat belt tension sensor.

The interpretation of the underlined words/phrases is disputed. These words/phrases read:

- (1) a carriage
- (2) a first portion of the seat belt tension sensor
- (3) spring acting between said first portion
- (4) said carriage comprising an opening adapted to receive the webbing
- (5) a corresponding opening in said first portion

### **III. Legal Standard**

Claim construction is a matter of law for the Court. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). The focus is on "what one of ordinary skill in the art at the time of the invention would have understood the term to mean." Id. at 986.<sup>5</sup> The first step in construing a patent claim is to examine the intrinsic evidence:

First, we look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention. Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the

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<sup>5</sup> The parties in their papers did not clearly define one of ordinary skill in the art.

special definition of the term is clearly stated in the patent specification or file history.

Thus, second, it is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication. . . . The specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. Thus, the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.

Third, the court may also consider the prosecution history of the patent, if in evidence. This history contains the complete record of all the proceedings before the Patent and Trademark Office, including any express representations made by the applicant regarding the scope of the claims. As such, the record before the Patent and Trademark Office is often of critical significance in determining the meaning of the claims. Included within an analysis of the file history may be an examination of the prior art cited therein.

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) (citations omitted).

These sources are analyzed in a hierarchical fashion, beginning with the “ ‘heavy presumption’ ” that claim terms mean what they say and carry their ordinary meaning as viewed by one of ordinary skill in the art. W.E. Hall Co. v. Atlanta Corrugating, LLC, 370 F.3d 1343, 1350 (Fed. Cir. 2004) (citing Johnson Worldwide Assocs., v. Zebco Corp., 175 F.3d 985, 989 (Fed. Cir. 1999)); Intellectual Property Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc., 336 F.3d 1308, 1315 (Fed. Cir. 2003). Dictionaries, encyclopedias, and treatises may be used to discover a term’s ordinary meaning. Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369 (Fed. Cir. 2003); Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202-03 (Fed. Cir. 2002).

As will be discussed, CTS says that the specification plays a key, if not dispositive role, in interpreting the ambiguous words/phases of Claim 19. This Court has previously articulated the law on the role of the specification (and prosecution history) in determining a claim term's meaning, stating:

Ordinary meaning, however, is not the end of the analysis; the specification and prosecution history must also be studied to determine if it is appropriate to afford a claim term its ordinary meaning. Kumar v. Ovonic Battery Co., 351 F.3d 1364, 1367-68 (Fed. Cir. 2003). The Federal Circuit recently explained the "twin axioms" regarding the role of the specification in claim construction:

On the one hand, claims must be read in view of the specification, of which they are a part. On the other hand, it is improper to read a limitation from the specification into the claims. Although parties frequently cite one or the other of these axioms to us as if the axiom were sufficient, standing alone, to resolve the claim construction issues we are called upon to decide, the axioms themselves seldom provide an answer, but instead merely frame the question to be resolved. We have recognized that there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification. As we have explained, an inherent tension exists as to whether a statement is a clear lexicographic definition or a description of a preferred embodiment. The problem is to interpret claims in view of the specification without unnecessarily importing limitations from the specification into the claims. That problem can present particular difficulties in a case such as this one, in which the written description of the invention is narrow, but the claim language is sufficiently broad that it can be read to encompass features not described in the written description, either by general characterization or by example in any of the illustrative embodiments.

Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 904 (Fed. Cir. 2004) (citations and quotation marks omitted); see also Slimfold Mfg. Co. v. Kinkead Indus., Inc., 810 F.2d 1113, 1116 (Fed. Cir. 1987) ("Claims are not interpreted in a vacuum, but are part of and are read in light of the specification.").

Thus, in certain situations, the specification or prosecution history may show an intent to depart from the ordinary meaning of a claim term.

CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366-67 (Fed.Cir. 2002). For example, the patentee may act as his own lexicographer and explicitly define a term in the specification or prosecution history. Id. The patentee may also characterize “the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” Teleflex, Inc. v. Ficosa North America Corp., 299 F.3d 1313, 1327 (Fed. Cir. 2002); see Alloc, Inc. v. ITC, 342 F.3d 1361, 1377 (Fed. Cir. 2003) (“a claim term will not carry its ordinary meaning if the intrinsic evidence shows that the patentee limited the scope of the claims”). If the “specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent” even if the language itself might be broad enough to cover the feature in question. SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc., 242 F.3d 1337, 1341 (Fed. Cir. 2001). Similarly, “when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment.” Modine Mfg. Co. v. ITC, 75 F.3d 1545, 1551 (Fed. Cir. 1996), abrogated on other grounds by Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558 (Fed. Cir. 2000), rev'd by 535 U.S. 722, 122 S.Ct. 1831, 152 L.Ed.2d 944 (2002). However, simply because the specification describes only one embodiment of the invention does not mean that the claims should automatically be limited to that embodiment. Liebel-Flarsheim, 358 F.3d at 906. Above all, the intrinsic evidence must show a clear and unmistakable intent to limit claim scope in order to overcome ordinary meaning and narrow a claim. Id.

Honeywell Intern., Inc. v. ITT Indus., Inc., 330 F. Supp. 2d 865, 867-77 (E.D. Mich. 2004).<sup>6</sup>

The Court went on to say:

It is a well established canon of claim construction that when a particular embodiment is described in the specification as the invention itself, and not just one way of utilizing it, the claims are not entitled to a scope broader than that embodiment. See Netword, LLC v. Centraal Corp., 242 F.3d 1347, 1352 (Fed. Cir. 2001); Wang Labs., Inc. v. America Online, Inc., 197 F.3d 1377, 1383 (Fed. Cir. 1999); Modine, 75 F.3d at 1551; Autogiro Co. of Am. v. United States, 181

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<sup>6</sup> The Court subsequently found the patent in Honeywell was not infringed, guided in large part by the Markman decision. Honeywell Intern., Inc. v. ITT Indus., Inc., 2005 WL 5416765 (E.D. Mich. May 17, 2005) (NO. CIV.A. 02-73948) (unpublished). The Federal Circuit affirmed. Honeywell Intern., Inc. v. ITT Indus., Inc., 452 F.3d 1312 (2006).

Ct.Cl. 55, 384 F.2d 391, 398 (1967). For instance, if the specification calls an embodiment “the invention” or “the present invention,” it is appropriate to limit the claims to that embodiment. See, e.g., Microsoft Corp. v. Multi-Tech. Sys. Inc., 357 F.3d 1340, 1348 (Fed. Cir. 2004) (“in light of those clear statements in the specification that the invention (‘the present system’) is directed to communications ‘over a standard telephone line,’ we cannot read the claims … to encompass data transmission over a packet-switched network such as the internet.”); SciMed, 242 F.3d at 1343-44 (holding that “the characterization of the coaxial configuration as part of the ‘present invention’ is strong evidence that the claims should not be read to encompass the opposite structure”); Watts v. XL Sys., Inc., 232 F.3d 877, 882-84 (Fed. Cir. 2000) (finding that “the specification actually limits the invention to structures that utilize misaligned taper angles, stating that ‘the present invention utilizes [the varying taper angle] feature’ ”). The context in which the embodiment is described must always be considered to determine if the embodiment is the “invention” or just the “preferred embodiment.” Wang Labs., 197 F.3d at 1383; Cultor Corp. v. A.E. Staley Mfg. Co., 224 F.3d 1328, 1331 (Fed. Cir. 2000) (“Whether a claim must, in any particular case, be limited to the specific embodiment presented in the specification, depends in each case on the specificity of the description of the invention and on the prosecution history. These sources are evaluated as they would be understood by persons in the field of the invention.”). This is consistent with the axiom that statements in the specification must be clear in order to narrow the scope of a claim. See Teleflex, 299 F.3d at 1327.

Id. at 878-79.

Thus, a claim term must be given its ordinary meaning **unless** the patentee redefined the term in the specification or characterized “the invention in the intrinsic record using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” Teleflex, Inc. v. Ficosa North America, 299 F.3d 1313, 1327 (Fed. Cir. 2002).

With these principles in mind, the Court considers the disputed words/phrases.

## IV. Claim Terms<sup>7</sup>

### A. “carriage”

The parties’ proposed constructions are as follows:

TK	CTS
a movable part of a seat belt tension sensor that has an enclosed hole in it for receiving a portion of the seat belt webbing and moves a distance that corresponds to the amount of tension applied to the seat belt webbing	a belt carrying component in a stationary housing, provided with an open space for receiving belt webbing relative to the stationary housing in response to tension applied to the webbing

Despite both parties rather verbose interpretations, the dispute regarding this term centers on two issues: (1) the meaning of an opening in the carriage, whether opening refers to a defined hole within the carriage or simply an open space; and (2) whether a carriage is required to be encompassed “in a housing.” Each issue is addressed in turn.

CTS argues that a “carriage” with an opening adapted to receive the webbing of the seat belt refers to an open space, not necessarily a hole defined by the carriage. However, TK says that it is the very fact that the ‘944 “carriage” defines a hole for receiving the seat belt webbing that allowed its claims to go forward in light of prior art, namely U.S. Patent No. 5,996,421 to Husby (“Husby”).

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<sup>7</sup> CTS says that TK has substantially changed its proposed claim constructions from those proffered in its original claim construction brief. This argument is not well taken. The Court directed TK to amend its proffered interpretations to better enable a jury to understand the claims. See Doc. No. 50.

The Court agrees with TK. In the prosecution history of the '944 patent, "carriage" was determined to mean "a movable part of a machine for supporting some other movable object or part." Plaintiff's Markman Brief, Ex. 4 (7/18/2005 Office Action at 4). Throughout claim 19 and the specification, the patent refers to the opening as "openings in" specific structural elements. In using the language "opening in," the specification rejects the use of simply an open space, as such a use is unconfined within a specific structure and may only be defined by the outer limits of two or more structural entities such as the open space between the slide [40] and bracket plate [22] of Husby. It is clear from the specification, the drawings, and most prominently the prosecution history, that the specification was drafted to limit the use of the term opening to that of a hole defined by the carriage. The dictionary definition of "hole" describes an "opening through something." MERRIAM-WEBSTER COLLEGiate DICTIONARY 575 (9th Ed. 1985). Here, the opening is for the carriage to receive the seat belt webbing. Thus, "carriage" shall be interpreted as urged by TK.

The more critical question with respect to the construction of "carriage" is whether the carriage must be contained within a housing as CTS contends. Notably, the term "a housing" is not found in either claim 19 or other relevant claims in the '944 patent. It is, however, found in the description of the "exemplary seat belt tension sensor," i.e. a preferred embodiment. See Col. 4 ll. 33-35 ("an exemplary seat belt tension sensor comprises an assembly of an anchor plate, a housing . . .), Col. 5 ll. 18-20 (a carriage . . . wherein openings in the first portion i.e. openings in the anchor plate and housing . . .), and Col. 5 ll. 48-51 ("[t]he bunching of webbing within the opening

generates lateral forces against the sides for the opening in the housing and/or anchor plate . . . ).

CTS contends that without the housing, described in the preferred embodiment, the '944 patent would have a carriage moving a distance relative to no claimed component in the invention. This assertion is without merit. Claim 19 clearly sets forth that the carriage "is adapted to move relative to "a first portion of the seat belt tension sensor." Col. 11 ll. 6-7. Thus, there is a reference point relative to the carriage—the first portion of the seat belt tension sensor.

Moreover, the term "carriage" is defined as moving, in a crash event, relative to an "anchor plate," the "anchor plate and the housing," and the "anchor plate and/or the housing." See Col. 4 ll. 47; Col. 4 ll. 50-52; Col. 4 ll. 62-63; Col. 5 ll. 2-5. Never does the specification exclusively measure the movement of the carriage in a crash event relative to a housing alone. Thus, CTS's contentions that the carriage would be moving a distance relative to no claimed portion of the invention without the inclusion of a housing is misplaced as the motion of the carriage is also or exclusively measured relative to the anchor plate. Col. 4 ll. 50-52.

Further, in every instance in which the claim term "carriage" appears as referenced within a "housing" is within the specification's description of its preferred embodiment. Simply because the specification describes only one embodiment of the invention does not mean that the claims should automatically be limited to that embodiment. The portions of the specification in which the preferred embodiment is not described, including the claims themselves, use the open ended term housing and/or anchor plate indicating an invention similar which does not include a housing,

would also be covered by the '944 patent. Col. 6 ll. 3; Col. 7 ll. 4; Col. 7 ll. 14-15; Col. 7 ll. 28. Put simply, this is not a situation where the preferred embodiment is the invention.

Notable also is that claim 19 does not recite a seat belt tension sensor, but rather "**a carriage of a seat belt tension sensor.**" The claim language focuses on the the structure and operation of the carriage component in relation to other seat belt tension sensor components (i.e., an adjacent first portion, spring(s) and the seat belt webbing). Details relating to other aspects of the range of seat belt tension sensors in which such a carriage may be employed were not specified, and therefore should not be used to limit claim 19. Thus, "carriage" should not be further limited to a carriage that is located in a sensor that has a stationary housing. The claim uses the generic term "carriage" without reference to the overall structure of the sensor or the specific location of the carriage relative to other components of the sensor. This gives support for the assertion that the "carriage" was not intended to be limited by the the particular sensor design described in the preferred embodiment. The carriage must have an opening for receiving the seat belt webbing and must be mounted so as to move relative to a first portion of the sensor, against the force of at least one spring, and by an amount that is responsive to tension applied to the seat belt. The width of the carriage opening must be sufficiently smaller than that of the adjacent first portion opening to prevent the webbing from rubbing against the sides of the adjacent opening. The claim language requires nothing further in respect to the carriage. Interjecting the requirement of a housing when the claim is silent in this regard would be inconsistent

with the claim language as a whole, and would improperly import extraneous limitations from the specification apart from the need to construe recited claim language.

Additionally, the carriage is illustrated in the preferred embodiment as having an anchor plate attached to a housing adjacent to the carriage. In other embodiments (Figs. 15a, 15b and 16a, 16b), substantial portions of the carriage extend outside of the housing 104. By illustrating various carriages in the context of embodiments that include both an anchor plate and a housing, “carriage” cannot be interpreted to exclude carriages utilized in seat belt tension sensors that do not have an outer housing.

Finally, “the prosecution history provides evidence of how the PTO and the inventor understood the patent.” Phillips, 415 F.3d at 1329. Application claim 19, which was renumbered and issued as independent claim 13, is similar to application claim 25, which issued as claim 19. Both claims recite a carriage adapted to move relative to a first portion in opposition to at least one spring acting between them. Application claim 19 was rejected as anticipated by Husby, and application claim 25 was rejected as obvious in view of Husby and a second reference. (Ex. 4, 7/18/05 Office Action at pp. 2-4.). As explained below, the way in which the rejection was resolved demonstrates that “carriage” is not limited to a carriage within a housing.

Key features of Husby are depicted in Figures 5 and 6 of the Husby patent and

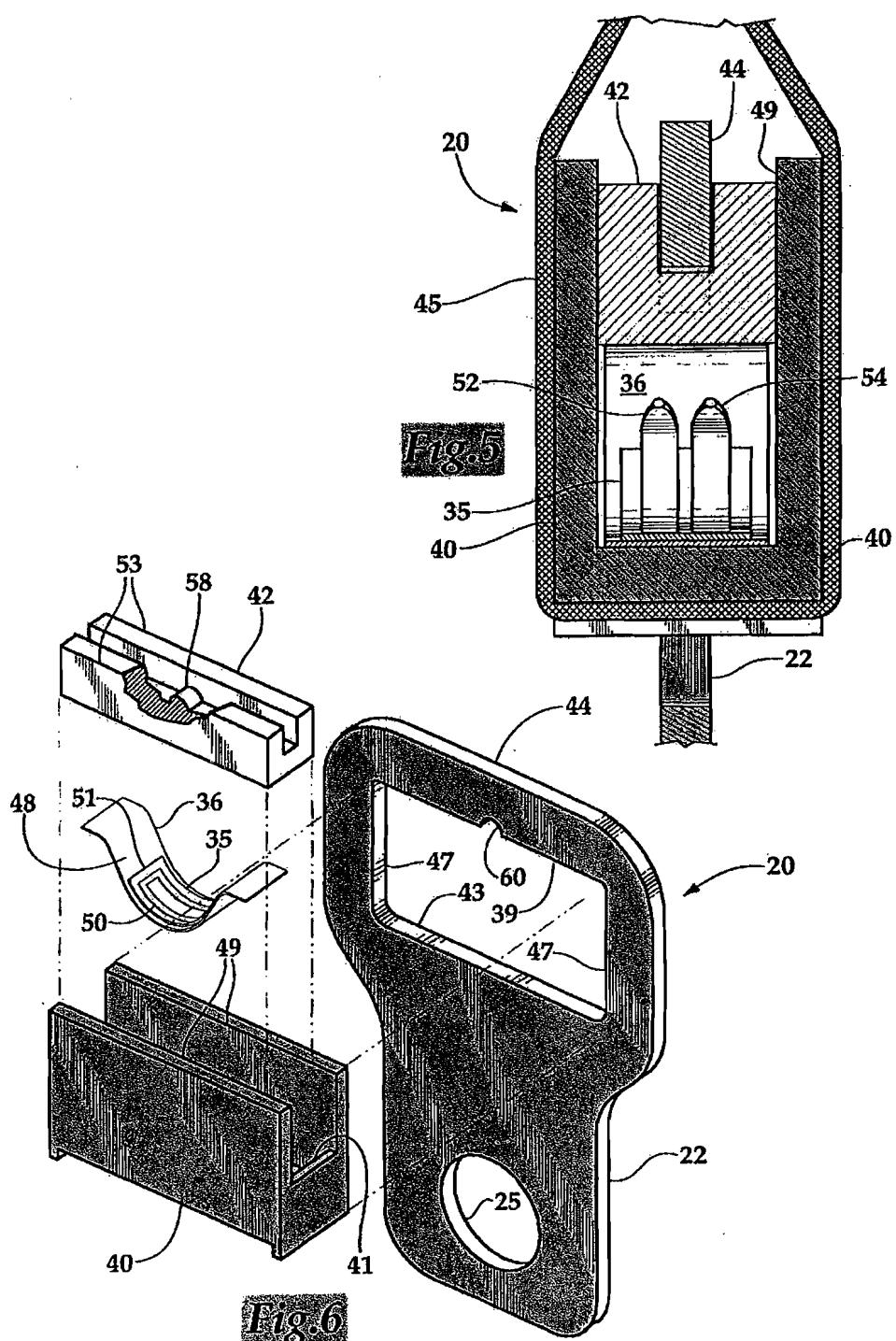
are set forth below:

**U.S. Patent**

Dec. 7, 1999

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**5,996,421**



As the figures show, Husby discloses a belt tension sensor which includes an anchor plate ("hold-down bracket 22") having an opening 43 in which slide 40 moves vertically. The belt loop 45 extends through the opening 43 and wraps around the slide 40, pulling the slide 40 in an upward direction when tension is applied to the belt. The upward travel of the slide 40 compresses a flexible resistor 35 on spring 36. This results in a change in the resistance of the resistor that can be detected by a controller and correlated to the applied belt tension. (Husby, Col. 3. l. 28-Col. 4, l. 40.)

Although the Husby sensor does not a stationary housing, the examiner found that the Husby slide corresponded to the claimed "carriage" of application claims 19 and 25. (Ex. 4, 7/18/05 Office Action at pp. 2 and 4.) The applicant had suggested that the slide of Husby does not correspond to the claimed "carriage" because it does not have "an opening adapted to receive the webbing of a seat belt" but rather provides an outer surface around which the seat belt is looped.<sup>8</sup> (Ex. 6, 5/11/05 Amendment and Reply at p. 9.) To this the examiner responded:

First, applicant argues that element 41 is not a "carriage". It is noted that Applicant does not provide a definition of what a "carriage" is. Looking to the dictionary (Merriam Webster's Collegiate Dictionary, 10<sup>th</sup> edition), the closest definition that would apply to this usage is "a movable part of a machine for supporting some other movable object or part". The slide of Husby (element 40, which includes sides 41; seen in Figures 2-4) is clearly a movable part which supports another movable part (the seat belt).

(Ex. 4, 7/18/2005 Office Action at p. 4.) Thus, the examiner understood "carriage" to refer to a movable part that supports the movable seat belt, without requiring that the carriage be located within a housing. The examiner's explanation of the term "carriage"

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<sup>8</sup> The applicant did not distinguish Husby on the basis that Husby lacks an outer housing or a carriage surrounded by such a housing.

in the prosecution history corresponds to TK's proposed interpretation and is consistent with the other language of the allowed paradigm claim relevant to this term. The applicant did not take issue with this usage of the term "carriage" by the examiner. The applicant did not amend the claim to require a housing or further define the claimed carriage to require that it be located within a stationary housing. The applicant instead continued to distinguish the slide of Husby on the basis that it lacks the claimed "opening adapted to receive the webbing of the seat belt." (Ex. 7, 10/18/05 Reply at pp. 2-4.) The examiner eventually accepted that argument and allowed the claims to issue. In sum, the prosecution history file supports TK's contentions that the meaning of the term "carriage" does not require it be encompassed in a housing as shown in the preferred embodiment.

In the end, the Court adopts TK's construction of "carriage." The Court is satisfied that one having ordinary skill in the relevant art at the time of the invention would not have assumed that the carriage was to be encompassed in a housing. Carriage shall be interpreted held to mean "a moveable part of a seat belt tension sensor that has an enclosed hole in it for receiving a portion of seat belt webbing and moves a distance that corresponds to the amount of tension applied to the seat belt webbing."

## B. “a first portion of the seat belt tension sensor”

The parties’ proposed constructions are as follows:

TK	CTS
a component of a seat belt tension sensor that is adjacent the carriage and is secured against significant movement caused by tension applied to the seat belt webbing	a stationary housing around the belt webbing carrying component and relative to which the belt webbing carrying component, as well as the belt webbing, moving in response to tension applied to the belt webbing

The dispute regarding this claim term centers on whether the “first portion of the seat belt tension sensor” requires “a housing” to accommodate the “carriage” and the “at least one spring” acting between the first portion and the “carriage.”

As determined above, the “carriage” itself is not required to be within “a housing.” However, in interpreting the phrase “a first portion of the seat belt tension sensor” the Court must consider whether the intrinsic record indicates that the “first portion” must include “a housing” to accommodate the carriage and corresponding “at least one spring.” In claim 19, “first portion of the seat belt tension sensor” is limited as follows:

- it must have an opening that is sufficiently wider than the corresponding opening in the carriage and sufficiently narrower than the nominal width of the seat belt webbing (Col. 12 II. 4-6); and
- that “the first portion” be fixed enough that the carriage may move relative to the “first portion” when acting against “at least one spring” in response to belt tension (Col. 11 II. 6-10).

At no point within claim 19 is the phrase “a first portion” qualified by any limitation that would suggest the “first portion” requires a housing. The structure described in claim 19

is directed to a carriage for use in any seat belt tension sensor that has an adjacent stationary portion with a corresponding opening for receiving the seat belt webbing. The use of the generic term “a first portion” leaves open the possibility for a variety of structural forms, including forms that do not envelope the carriage in a housing.

CTS says that the “first portion” must include a housing, relying again on the preferred embodiment which it says describes the “first portion” to mean an anchor plate and a housing. This argument is without merit. The term “first portion of the seat belt tension sensor” is never explicitly defined in the specification. In fact, the term “first portion” is first used in claim 1 of the ‘944 patent. (Col. 7 l. 53). It cannot be said that the specification shows a clear and unmistakable intent to limit the scope of the phrase “a first portion” to require a housing.

Further CTS contends that unless “the first portion of the seat belt tension sensor” includes a housing, the ‘944 patent will 1) be anticipated by Husby; and 2) not meet the full scope of enablement. As to its anticipation argument, CTS misconstrues the limiting amendments in the prosecution history. After the rejection on the basis of anticipation by Husby, TK amended its claims (including claim 19) to clarify that the two inventions differed on the basis of the distinction of the opening in the carriage that was to constrain the seat belt webbing and diminish or eliminate friction between the seat belt webbing and the “first portion.” Husby was not distinguished by confining the “first portion” to a structure having a housing around the carriage. (Ex. 7, 7/18/05 Office Action - Reply). After this clarification, the claims were allowed to issue.

CTS’s enablement argument must also be rejected. TK’s preferred embodiment satisfies the enablement requirement. Husby discloses a spring and carriage housed

within the anchor plate itself, absent a housing, one of ordinary skill in the relevant art could “without undue experimentation” practice the ‘944 invention without the use of a housing. In re Wands, 858 F.2d 731, 736-41 (Fed. Cir. 1988).

Therefore, the phrase “a first portion of the seat belt tension sensor” must be given its plain and ordinary meaning as viewed by a person having ordinary skill in the relevant art at the time of invention. Due to the examiner’s view that Husby anticipated the ‘944 patent but for the difference in the opening for receipt of the seat belt webbing, and Husby’s lack of a stationary housing, it is clear that the examiner, one having ordinary skill in the relevant art at the time of the invention, assumed the phrase “a first portion” term to be broader than the preferred embodiment. As such, the “first portion of the seat belt tension sensor” **does not require** a housing. Clearly, however, an embodiment containing a housing would exemplify the invention. As such, the Court adopts TK’s construction of “a first portion of the seat belt tension sensor” to mean a component of a seat belt tension sensor that is adjacent the carriage and is secured against significant movement caused by tension applied to the seat belt webbing.

**C. “. . . spring acting between said first portion . . . and said carriage”**

As an initial matter, the parties have stipulated that the term “spring” means “an elastic machine element that stores energy as a function of being displaced by an external force and returns to its basic form or position when force is released.” See Joint Glossary (Doc. 49).

The parties' proposed interpretations are as follows:

TK	CTS
spring operating between the first portion and the carriage to generate a force that tends to resist the movement of the carriage relative to the first portion caused by the belt tension	a spring, mounted to the belt webbing carrying component and to the stationary housing that is compressed during seat belt tension measurement

The dispute regarding this phrase centers on whether the spring must be mounted to a stationary housing. Due to the Court's finding that "carriage" need not be encompassed by a housing, and that the "first portion of the seat belt tension sensor" does not **require** the inclusion of a housing, the Court cannot interpret the claim term "spring acting between said first portion . . . and said carriage" to **require** that the spring be mounted to a stationary housing. As such, the claim term "spring acting between said first portion . . . and said carriage" should be interpreted, as TK suggests, to mean "a spring, operating between the first portion and the carriage to generate a force that tends to resist the movement of the carriage relative to the first portion caused by belt tension."

This interpretation follows directly from the ordinary meaning of the claim language. The relevant surrounding language recites that the carriage can move "relative to a first portion of the seat belt tension sensor in opposition to at least one spring acting between said first portion of the seat belt tension sensor and said carriage." Col. 11 ll. 6-9. A person of ordinary skill would understand this to mean that the spring(s) generate a force in a direction opposite the direction of the belt tension

force. The claim does not specify how or where the at least one spring is mounted. The skilled artisan would recognize that a variety of mounting arrangements will enable the spring(s) to perform the function of “acting between” the first portion and the carriage to oppose motion of the carriage. The spring(s) may be mounted, for example, to the first portion only and become engaged by the moving carriage during belt tension measurement. As TK contends, the “spring” can be any type of spring. Accordingly, the Court adopts TK’s interpretation.

**D. “said carriage comprising an opening to receive the webbing”**

The parties’ proposed constructions are as follows:

TK	CTS
the carriage has an enclosed hole in it for receiving a portion of the seat belt webbing	the belt webbing carrying the component has an open space through which the belt webbing is received

The Court has already interpreted the meaning of the term “opening” in the carriage supra, along with “a carriage.” Flowing from these interpretations, the phrase “said carriage comprising an opening to receive the webbing” is interpreted, as TK suggests, to mean “the carriage has an enclosed hole in it for receiving a portion of the seat belt webbing.”

As described above, the intrinsic record establishes that the term “opening” was used in a manner to mean an enclosed hole that extends through the carriage. Contrary to CTS’s position, the term “opening” was not intended to encompass an external gap or channel on an outer surface of the carriage. The specification

consistently shows the carriage opening as an enclosed hole 114 extending through a central portion of the carriage 106 (see Figs. 4, 5, 6, 13a, 13b, 14a, 14b, 15a, 15b, 16a and 16b). Fig. 16b shows portions of the carriage 106 extending both above and below the carriage opening. Companion Fig. 16a, which is a front perspective view of the same device, also shows the carriage 106 surrounding the opening 114. Thus, all figures illustrate a carriage having an enclosed, generally centrally located opening.

Moreover, the prosecution history shows the inventor's intent to disclaim a gap or channel on an external surface of the carriage from the claimed carriage opening. The slide 40 of the Husby reference, which includes an open gap on its lower surface for receiving the belt loop, was repeatedly distinguished as not disclosing the claimed carriage opening. Because the applicant clearly limited the claim during prosecution to exclude a carriage having an external trough or channel around which the seat belt is looped, the carriage opening cannot be interpreted as an enclosed hole in the carriage.

**E. "corresponding opening in said first portion"**

The parties have agreed that the phrase "a corresponding opening in said first portion" should be interpreted to mean "an opening in the first portion of the seat belt tension sensor that is aligned with the carriage for receiving a portion of the [seat] belt webbing." The Court adopts this interpretation.

## V. Conclusion

For the reasons stated above, the Court adopts the interpretation of the claim terms displayed in the claim chart attached as Exhibit A.

SO ORDERED.



AVERN COHN  
UNITED STATES DISTRICT JUDGE

MAY 26 2010

Dated:  
Detroit, Michigan